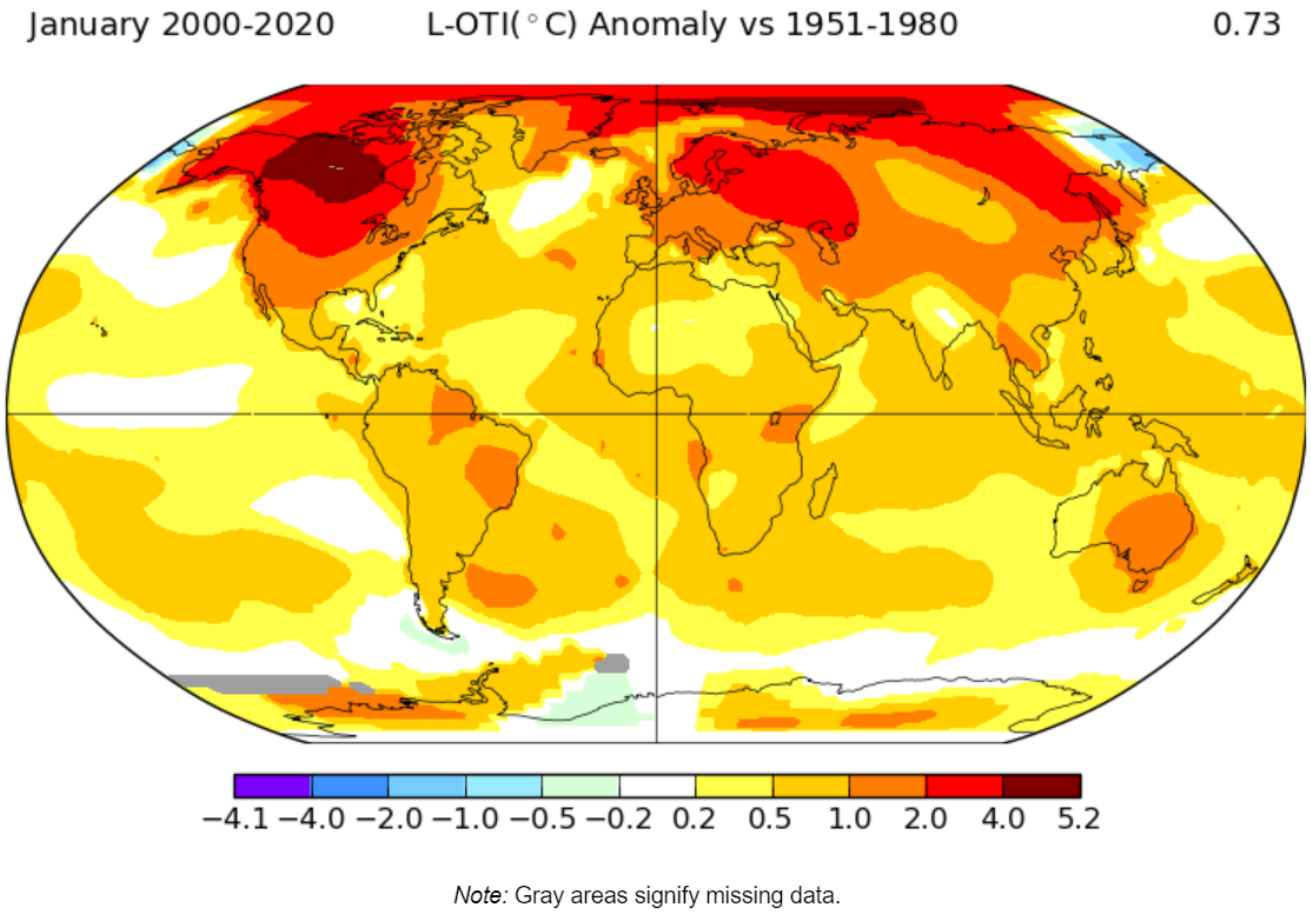
My NASA Data - Mini Lesson

Surface Air Temperature Global Anomaly Map



Note: Gray areas signify missing data.

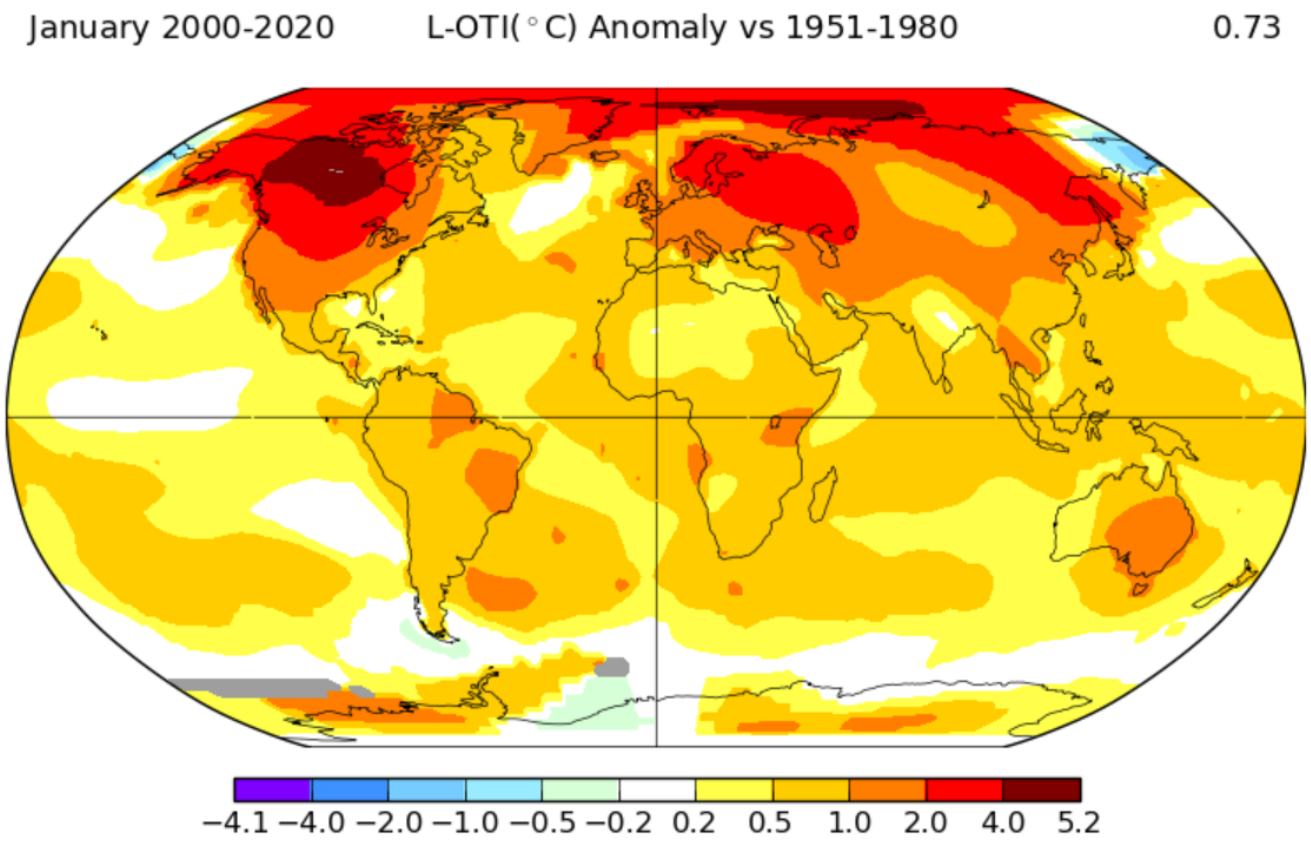
Mini Lesson

NASA's Goddard Institute for Space Studies (GISS) provides monthly maps and graphs showcasing (nearly global) surface air temperature changes for each month since 1880 when meteorological stations were established around the world. These maps provide monthly anomalies of surface temperatures (land surface air temperatures) as compared to 1880, using 1951-1980 as the base period. GISTEMP is one of the main datasets scientists use to monitor monthly global and regional temperature variability and trends. Temperature anomalies indicate how much warmer or colder it is than *normal* for a particular place and time. For the GISS analysis, *normal* always means the average over the 30-year period 1951-1980 for that place and time of year.

- **Anomalies:** Difference between the mean temperature (°C) averaged over a specified **mean period** and **time interval** and the mean temperature during a given **base period**.
    - Example of an anomaly: The difference between average January temperatures during 2000-2010 and a base period of 1951-1980.
- **Mean period:** Any monthly, seasonal (3 months or 6 months) or annual mean. [January in example]
- **Time interval:** Years over which temperatures are averaged or trends are found. [2000-2010

in example]
- **Base period:** Time interval to which anomalies are relative. [1951-1980 in example]

The number at the top right-hand corner of the map plot is an estimate for the global mean of the calculated field.



Note: Gray areas signify missing data.

1. What does surface air temperature anomaly mean?
2. What is the range of values shown on the scale bar? What do those values mean?
3. Where in the world do you find the highest and lowest values (the extremes) of the data in your images? Why do you think these locations experience these extremes and not other locations?
4. Are any patterns in the data noticeable? Are patterns different at different zones of latitude? (Explain these patterns.)

Teachers who are interested in receiving the answer key, please contact MND from your school email address at larc-mynasadata@mail.nasa.gov.